

WHAT IS CLAIMED IS:

1. A switch comprising a movable part supported at both ends, and a first contact provided between both the ends of said movable part, wherein
said movable part comprises:
a first bimetal for displacing said contact in a predetermined direction according to temperature; and
a second bimetal for displacing said contact in a direction opposite to the predetermined direction according to temperature.
2. The switch as claimed in claim 1, wherein said movable part comprises a bend in the predetermined direction or the direction opposite to the predetermined direction.
3. The switch as claimed in claim 1, wherein
said first bimetal comprises:
a first component having a first coefficient of thermal expansion; and
a second component deposited on said first component and having a coefficient of thermal expansion lower than the first coefficient of thermal expansion, and
said second bimetal comprises:
a third component having a second coefficient of thermal expansion; and
a fourth component deposited on said third component and having a coefficient of thermal expansion higher than the second coefficient of thermal expansion.
4. The switch as claimed in claim 3, wherein said first component and said fourth component are made of the same material, and said

second component and said third component are made of the same material.

5. The switch as claimed in claim 3, further comprising heaters for heating said first bimetal and said second bimetal, respectively, wherein

said movable part bends in the predetermined direction when said first bimetal is heated, and

said movable part bends in the direction opposite to the predetermined direction when said second bimetal is heated.

6. The switch as claimed in claim 1, wherein both the ends of said movable part are secured.

7. The switch as claimed in claim 1, wherein

said movable part further comprises:

a third bimetal for displacing said contact in the predetermined direction according to temperature; and

a fourth bimetal for displacing said contact in the direction opposite to the predetermined direction according to temperature.

8. The switch as claimed in claim 7, wherein

said first bimetal, said second bimetal, said third bimetal and said fourth bimetal extend in different directions from a contact position at which said contact is provided.

9. The switch as claimed in claim 8, wherein

said first bimetal extends in a direction opposite to a direction in which said third bimetal extends,

said second bimetal extends in a direction substantially perpendicular to the directions in which said first bimetal and said third bimetal extend, and

said fourth bimetal extends in a direction opposite to the direction in which said second bimetal extends.

10. The switch as claimed in claim 7, further comprising:
a first supporting section for supporting one end of said movable part; and

a second supporting section for supporting the other end of said movable part, wherein

one end of said first bimetal is supported by said first supporting section,

one end of said second bimetal is supported by said second supporting section, and another end of said second bimetal extends from said first bimetal,

one end of said third bimetal is supported by said second supporting section and provided substantially parallel with said second bimetal, and

one end of said fourth bimetal is supported by said first supporting section and another end of said fourth bimetal extends from said third bimetal.

11. The switch as claimed in claim 10, wherein

said first bimetal and said third bimetal, and said second bimetal and said fourth bimetal, are estranged from each other.

12. The switch as claimed in claim 7, wherein

each of said first bimetal and said third bimetal comprises:
a first component having a first coefficient of thermal expansion; and

a second component deposited on said first component and having a coefficient of thermal expansion lower than the first coefficient of thermal expansion, and

each of said second bimetal and said fourth bimetal comprises:

a third component having a second coefficient of thermal expansion; and

a fourth component deposited under said third component and having a coefficient of thermal expansion higher than the second coefficient of thermal expansion.

13. The switch as claimed in claim 7, wherein said movable part includes a bend in the predetermined direction or in the direction opposite to the predetermined direction.

14. The switch as claimed in claim 13, further comprising heaters for heating said first bimetal, said second bimetal, said third bimetal and said fourth bimetal, respectively, wherein

said movable part bends in the predetermined direction when said first bimetal and said third bimetal are heated, and

said movable part bends in the direction opposite to the predetermined direction when said second bimetal and said fourth bimetal are heated.

15. The switch as claimed in claim 1, further comprising a first substrate including a first signal line, a second signal line, and a first supporting section for supporting both the ends of said movable part, wherein

said first contact electrically connects said first signal line and said second signal line by contacting with said first signal line and said second signal line.

16. The switch as claimed in claim 15, further comprising:

a second substrate including a third signal line, a fourth signal line, and a second supporting section for supporting both the ends of said movable part; and

a second contact provided on a surface opposite to the surface on which said contact is provided in said movable part, wherein

said second contact electrically connects said third signal line and said fourth signal line by contacting with said third signal line and said fourth signal line.

17. The switch as claimed in claim 1, wherein said movable part comprises an elastic part provided between one end of said movable part and said contact, said elastic part having elasticity in a longitudinal direction of said movable part.

18. The switch as claimed in claim 17, wherein said elastic part has corrugated structure.

19. A manufacturing method of a switch comprising a movable part supported at both ends, and a first contact provided on the movable part, the method comprising steps of:

preparing a substrate;

forming a first component in a first area of the substrate, the first component having a first coefficient of thermal expansion in;

forming a second component in a second area of the substrate, the second area including the first area and the second component having a second coefficient of thermal expansion lower than the first coefficient of thermal expansion; and

forming a third component in a third area of the substrate, the third area being included in the second area and does not overlap with the first area, and the third component having a coefficient

of thermal expansion higher than the second coefficient of thermal expansion.

20. The manufacturing method of a switch as claimed in claim 19, wherein said step of forming the first component is similar to said step of forming the third component.

21. The manufacturing method of a switch as claimed in claim 19, further comprising a step of removing at least a part of the second component formed between the first area and the third area.

22. An actuator, comprising:

a movable part supported at both ends and including a bend in a predetermined direction; and

a drive section for bending said movable part in a direction opposite to the predetermined direction.

23. An actuator comprising a movable part supported at at least one end, wherein

said movable part comprises:

a first bimetal for displacing another end of said movable part in a predetermined direction according to temperature; and

a second bimetal for displacing the other end of said movable part in a direction opposite to the predetermined direction according to temperature.

24. The actuator as claimed in claim 23, wherein said first bimetal and said second bimetal are provided in a direction substantially parallel with a longitudinal direction of said movable part.